

REMARKS

Claims 1, 4, 5, 10, 11, 14-17, 19 and 23-27 have been amended. Claims 2, 3 and 9 have been canceled without prejudice. New claims 28 and 29 have been added. No new matter has been added by way of these amendments.

Claim Objections

Claims 23-26 have been amended to address the informalities raised by the Office Action.

Claim Rejections – 35 U.S.C. § 102

Claims 1-5, 9-11, 14-17, 19 and 23-27 stand rejected under 35 U.S.C. 102(b) as being anticipated by Ioanesian et al. (US 3,728,040). Without acquiescing in this rejection and to expedite further prosecution, Applicants amend independent claims 1 and 23 to recite that the one or more bodies are rotatably connected to the braking shaft. The Office Action admits that Ioanesian's blades 11 and 13, which the Office Action characterizes as the one or more bodies recited in independent claims 1 and 23, are only fluidically connected to the braking shaft, not rotatably connected to the braking shaft (see, Office Action at page 8; see also, Ioanesian at column 3, lines 32-41). One skilled in the art would have no reason to modify Ioanesian's turbodrill so as to rotatably connect the blades 11 and 13 to the turbodrill shaft 7, otherwise Ioanesian's braking unit 15 could not serve its intended purpose of operating as an axial pump that produces counterpressure for a main pump when the rotation speed of the turbodrill shaft 7 increases (see, e.g., Ioanesian at column 3, lines 32-41 and column 4, lines 53-56). As such, independent claims 1 and 23 as currently amended are patentable over Ioanesian. So are claims 4, 5, 10, 11, 14-17, 19 and 24-27 since those claims depend from claim 1. Claims 2, 3 and 9 have been canceled and thus the rejection of those claims is now moot.

Claims 1-4, 9-11, 14-17, 19 and 23-27 stand rejected under 35 U.S.C. 102(b) as being anticipated by Ranzi (US 3,728,040). Without acquiescing in this rejection and to expedite

further prosecution, Applicants amend independent claims 1 and 23 to recite that an axial rotation of the braking shaft causes a movement of the one or more bodies and that the drilling apparatus is used with a drilling fluid. In Ranzi, a movement of the casing D (and thus the projections or fins D' provided with the casing D, which the Office Action characterizes as the one or more bodies recited in independent claims 1 and 23), causes an axial rotation of the driven shaft E, which the Office Action characterizes as the braking shaft recited in independent claims 1 and 23 (see, e.g., Ranzi at column 1, lines 38-54 and column 2, lines 28-34), not the other way around as recited in independent claims 1 and 23. One skilled in the art would have no reason to modify Ranzi's compressor so as to cause a movement of the casing D (and thus the projections or fins provided with the casing D) via an axial rotation of the driven shaft E, otherwise Ranzi's compressor could not serve its intended purpose of providing a centrifugal coupling where the driven portion of the coupling effects a variable braking action (see, e.g., Ranzi at column 1, lines 1-19). Further, Ranzi is directed to an airplane compressor which would not be used with a drilling fluid, as recited in independent claims 1 and 23. As such, independent claims 1 and 23 as currently amended are patentable over Ranzi. So are claims 4, 10, 11, 14-17, 19 and 24-27 since those claims depend from claim 1. Claims 2, 3 and 9 have been canceled and thus the rejection of those claims is now moot.

Claim Rejections – 35 U.S.C. § 103

Claim 5 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Ranzi. As discussed above, current independent claim 1 is patentable over Ranzi. Since claim 5 depends from claim 1, claim 5 is also patentable over Ranzi.

Allowability of New Claims

As discussed above, current independent claim 1 is patentable over Ioanesian and Ranzi. Since new claims 28 and 29 depend from claim 1, those claims are also patentable over Ioanesian and Ranzi.

New claim 28 is further patentable over Ioanesian for the following additional reason. New claim 28 is directed to a drilling apparatus where the turbine shaft and the braking shaft are coupled by a coupling device so that the rotation speed of the braking shaft is proportional to but different from the rotation speed of the turbine shaft. In Ioanesian, the turbine shaft and the braking shaft are the same shaft 7 and hence the turbine shaft and the braking shaft would rotate at the same speed.

New claim 29 is further patentable over Ioanesian and Ranzi for the following additional reason. New claim 29 is directed to a drilling apparatus where the one or more bodies includes at least one cup-shaped or V-shaped body that is arranged such that the concave side of the at least one cup-shaped or V-shaped body is oriented to face a flow direction of the drilling fluid. Neither Ioanesian nor Ranzi teaches or suggests the above recited feature.

CONCLUSION

Consideration of the foregoing amendments and remarks, and reconsideration of the application is respectfully requested by Applicants. It is believed that the Office Action dated August 10, 2010 has been fully addressed, and that the application is now in condition for allowance and Applicants earnestly seeks such by the Examiner. If any fee is due as a result of filing this paper, please appropriately charge such fee to Deposit Account No. 50-2183 (Ref. No. 21.1106) and please credit any excess fees to such deposit account. If a petition for extension of time is necessary in order for this paper to be deemed timely filed, please consider this a petition therefore.

If the Examiner deems that any issue remains after considering this paper, the Examiner is invited to contact the undersigned attorney to expedite the prosecution of the application and engage in a joint effort to work out a mutually satisfactory solution.

Schlumberger Technology Corporation
Sugar Land Product Center
200 Gillingham Lane, MD 200-9
Sugar Land, Texas 77478
(281) 285-8377
(281) 285-8821 Fax
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Respectfully submitted,

/Jianguang Du/
Jianguang Du
Reg. No. 61,385
Attorney for Assignee